METHOD AND SYSTEM FOR PROVIDING SECONDARY INTERNET ACCESS FEATURES BY INTERCEPTING PRIMARY BROWSER WINDOW LOCATORS

CROSS-REFERENCE TO RELATED APPLICATION

This application is related to U.S. provisional application Ser. No. 60/491,224, filed on July 7, 2003 bearing the same title and from which it claims benefits under 35 U.S.C. §119(e).

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention is related to network user interfaces, and more particularly to a World-Wide-Web (WWW) browser that provides secondary Internet access features based on primary browser window activity.

2. Description of the Related Art

Public networks, and in particular the Internet provide an increasingly prevalent source of information as well as a means purchase of goods and services at home as well as in business. Internet browsers provide a user interface to a myriad of files located on servers, and the files represent web pages that can range from simple text displays to graphic and animated displays. Search engines and other search tools such as directory systems

provide a mechanism for locating information as well as products and services on the Internet.

Sales on the Internet are generally provided by websites
5   controlled by a seller of the particular goods or services. However, advertising intended to draw a buyer to the sales website or to a non-Internet sales outlet may be provided in many forms: targeted or non-targeted e-mail, advertisement banners provided from another web page or website, pop-ups provided through a
10 website or via a hosting service or other party in the position to generate an overlay or pop-up as the Internet user or "surfer" activates a web page.

However, all of the above-described advertising mechanisms
15 have related drawbacks, and generally are not related to the particular items that the Internet surfer might want to locate or purchase. Therefore, a primary Internet promotion strategy pursued by sources of information, goods or services is search engine optimization, attempting to place their website or web pages high
20 in the search engine results rankings for particular search terms. But, search engine results are geographically general, do not provide much in the way of promotional ability through visual distinction (e.g., typically a search engine result is a few lines

of information gleaned from the web page headers) and tend to be persistent beyond what is typically desired by an advertiser. Advertisement placement on a search engine home page is expensive, partially due to limited available space and does not tend to be

5   persistent at all due to advertisement rotation. Further, such advertisement is generally not targeted either geographically or often with respect to a search engine query, therefore such advertisement tends to be ignored and if it is merely noted, can be difficult to re-locate after a user has moved on to another

10   page.

Therefore, it would be desirable to provide a mechanism for advertising and otherwise informing a user, in particular a user that is searching for particular items via a search engine, in a

15   manner that can be geographically targeted, is sufficiently but not excessively persistent, and is cost-effective.

SUMMARY OF THE INVENTION

The above-stated objectives of advertising and otherwise informing a user, in particular a user of a search engine, in a manner that can be geographically targeted, is suitably persistent and is cost-effective are provided in a method and system for providing secondary Internet access features by intercepting primary browser window locators.

The method detects user activity in a primary browser window of a browser and if a locator is detected, it is parsed to determine a target of the locator. The target is then compared to a list of targets. If a match is found, a secondary browser window is activated and content is displayed that is associated with the target. The target may be a next URL of the primary browser window, or may be a search engine key. The target may be communicated to a server, which pushes content for display in the secondary browser window. Geographical information may also be pushed to the server, permitting selection of content at the server for display in the secondary browser window.

The method may be embodied in a computer program product containing program instructions for execution within a general-purpose computer system for carrying out steps of the method. The method may also be embodied in a general-purpose computer system executing the program instructions of the computer program

product.

The foregoing and other objectives, features, and advantages of the invention will be apparent from the following, more

5 particular, description of the embodiments of the invention, as illustrated in the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 is a block diagram depicting a networked computer system in which embodiments of the invention may be practiced.

Figure 2 is a pictorial diagram depicting an Internet browser displayed on the graphical display of **Figure 1,** having graphical output in accordance with an embodiment of the present invention.

Figure 3 is block diagram depicting an organization of software and data in memory in accordance with an embodiment of the present invention.

Figure 4 is a flowchart depicting operation of a client-side initialization process in accordance with an embodiment of the present invention.

Figure 5 is a flowchart depicting operation of a client-side operational process in accordance with an embodiment of the present invention.

Figure 6 is a flowchart depicting operation of a server-side process in accordance with an embodiment of the present invention.

DETAILED DESCRIPTION OF THE EMBODIMENT OF THE INVENTION

5   The present invention concerns techniques for providing

advertising and other features in response to detected activity in

a main browser window. Component software on a user machine,

provided as a browser plug-in ("browser helper object") or other

browser-interfaced component, generally a dynamic-linked library

10   (DLL) is installed on the user machine and activated so that

browser activity is detected and browser display and/or

functionality are modified to provide a secondary browser display

that can display advertising, information or other useful

secondary display content in conformity with detected browser main

15   window activity. The secondary browser display is functionally a

stand-alone browser window that is drawn within the browser main

window and the controlling program responds to information

gathered from user activity within the main browser window, but is

otherwise independent of the operation of the browser main window.

20   Alternatively, the secondary browser window could be drawn

separately as a layered window or a separate browser executable

instance.

        Referring now to **Figure 1**, a system **10** in which embodiments

25   of the present invention may be practiced is depicted in a block

diagram. A server **12** is coupled to a signal-bearing media in the form of hard disk storage **13** having program instructions for practicing portions of a method in accordance with an embodiment of the present invention that are loaded into a memory **19A** and

5   executed by one or more central processing units **18A** (CPU). Server **12** is coupled to an end-user computer **14** via network connection **11**, which may be an Ethernet connection coupled to routers, bridges or other terminal equipment for connection to a wide-area network, and thereby to the Internet. Alternatively, network

10   connection may be a modem, DSL or cable modem connection coupled to end-user computer **14** for direct connection to the Internet as is typical in home installations. As such, network connection **11** represents a connection to the Internet or other suitable platform for connection to remote systems such as server **12**. The present

15   invention uses the network depicted in **Figure 1** to remotely deliver advertising and/or other content in response to activity of a browser executed by a processor (CPU) **18** from a memory **19** within end-user computer **14**. When a user having access to end-user computer **14** coupled to network connection **11** browses the Internet

20   via the executing browser, main browser window activity is detected and a secondary browser window may be activated or main browser window behavior modified in response to the detected main browser window activity.

End-user computer **14** contains is coupled to a graphical

display **16** and input devices such as a keyboard **15** and mouse **17**

providing interactivity with the browser program in order to

provide access to the world-wide-web (WWW). Server **12** is accessed

5   via the program of the present invention and may also be accessed

directly by browser through the main browser window.

Referring now to **Figure 2,** a user interface of a program and

system in accordance with an embodiment of the present invention

10   is depicted. A browser interface **30** includes a location area **31**

for displaying the currently active URL, a toolbar **33** for

navigating and a main browser window (content area) **37** for

displaying the contents or programmatic response to a web page

loaded from the Internet. Secondary browser window **35** is depicted

15   as visible, but initially secondary browser window is not seen and

main browser window **37** may extend to the area occupied in the

figure by secondary browser window **35**. Main browser window **37** is

depicted as displaying the contents of a search engine web page

interface including a query input area **32,** a query activation

20   button **38** and a list of search results **34** as is typically provided

by a search engine, but the depicting should be understood to not

limit the application of the techniques of the present invention

to search engines having an interface as depicted. Prior to, or

simultaneously with the display of search results **34** in main

browser window **37** via a new search engine page load (a new URL or search engine URL that generally has a query string appended), secondary browser window **35** may be activated depending on the query and an advertisement **36** or other information displayed.

5   Advertisement **39** contains links **39** to purchase and information options and other options may be provided in combination with other types of displays (information, alerts, etc.) as appropriate to the type of display in secondary browser window **35**. If a user activates one of links **39**, the content associated with the link

10   will generally be loaded into main browser window **37** and secondary browser window **35** will once again be hidden, but the present invention also contemplates using secondary browser window **35** as the content display area, and in practice, main browser window **37** can be hidden or remain in place.

15

Information content provided by secondary browser window **35** may include terror alerts, weather information, traffic alerts, and other information that may be geographically selected based on a locale of the user. A feature of the system is the ability to

20   determine locale via zip code query prompts, scanning cookies or other mechanism for determining local, and then providing content selected in conformity with the known locale. For example, the traffic and weather conditions as well as alerts can be selected for the region or a city and even non-Internet purchase directed

advertising can be brought to local clients, so that retail stores and other vendors that are not selling only on the Internet or via mail-order can advertise goods or services to locals.

5   Another feature of the system enabled by the interception of browser universal resource locators (URLs) or access control lists (ACLs) is the ability to provide content filters as part of the operation of the system. The term URL or locator will be applied herein, but it should be understood that access can be made to

10   URLs through an ACL or in general other mechanisms and the present invention is not limited to the mechanism by which a browser accesses content on the Internet, only requiring interpretation of the access locator via comparison to known values located in a local data store.

15

Content-filtering in the context of the present invention provides a client-side filtering that works in conjunction with the URL interception of the above-mentioned main browser window directives and the client-side software can selectively block

20   Internet access to selected sites continuously or over particular time intervals, such as disabling access to non-approved Internet sites for employer-owned machines during business hours. The software can also block pop-up ads, as the instantiation of new URL windows is monitored by the software and can be prevented.

The client-side software intercepts a URL being activated in main browser window **37** and checks the intercepted URL against local data stores to determine if the URL is a filtered URL (non-approved URL) and/or a URL for which the secondary browser window **35** should be activated, permitting secondary browser window **35** to operate invisibly until a local trigger URL is detected as requested in the main browser window **37**. Business logic and rule sets embedded in the local data stores provide rules for processing URLs comparing them to URL data sets in the local data stores. Generally, the URL is returned to main browser window **37** while any secondary information is provided in secondary browser window **35**. But, for filtered sites and for other special purposes, the URL in main browser window **37** can be blocked and/or replaced with another URL looked up based on business rules in the local data stores.

Form entries can also be detected from the main browser window and in particular, the present invention is directed toward intercepting search form entries for search engines, so that a search query may be intercepted and processed for activating secondary browser window **35** in response to search queries identified by further business logic and rule sets within the local data stores. Search engine queries are usually formed as

form data that can be intercepted or as query parameters in a URL.
For query-containing URLs, business logic in the local data store
indicates a mechanism for stripping the query parameters and
interpreting them to determine the query string, yielding a result
5   equivalent to intercepting the queries entered as form data.

Once a query has been identified as matching an entry in the
local data store, information is passed from server **12** and an
advertisement URL is returned from the server that can then be
10 used by secondary browser window **35** to retrieve advertising
content **36** from server **12**. If a link **39** in the secondary browser
window **35** is activated, the URL can be transferred to main browser
window **37** and the underlying content loaded there with the
secondary browser window **35** once again hidden from view. The
15 information passed to server **12** on a detected query includes a
query, the URL, and the search engine name. The information also
may include an "affiliate" GUID, which is a GUID identifying a
business affiliate (e.g. a reseller providing goods advertised in
the secondary browser window content).

20

The data stores having the lists of URLs and queries
identified in the present invention are maintained by periodically
checking for updates on the server at the time of registration
(initialization) of the browser helper component. Security is also

provided through connection to server **12** and the identity of a user is generally verified once per day. A GUID is generated for each user each day and is passed to server **12** to identify and authenticate a user.

5

Referring now to **Figure 3,** an organization of software modules in accordance with the present invention is depicted for server memory **19A** and end-user computer memory **19.** Client side software **22B** within end-user computer memory **19** includes program

10   instructions for interacting with server side software **22A** within server memory **19A,** as well as storing and retrieving information and logic within client-side data stores **25A.** Client-side data stores include business rule sets **23A** and lists **24A,** that are downloaded on an as-needed upgrade basis from server **12,** generally

15   in response to detecting a version number deficiency at the first startup of the browser software (and thus client side software **22B**) on a given day. Server-side software provides current lists **24B** and current business rules **23B** for updating data stores **25A** within end-user memory **19** (that is then stored on permanent

20   storage such as a hard drive in end-user computer **14**). Lists **24A** include lists of URLs and queries for which information exists for loading into secondary browser window **35.** Advertising/Information content **26** is also contained within memory **19A,** but may represent only lists of links to content on other servers rather than the

actual content, that are then passed to client side software **22B** for loading into secondary browser window **35**. Client-side software **22B** is also responsible for performing the filtering, cookie scanning, URL and query parsing (in conjunction with business

5 rules **23A**) described above.

Referring now to **Figure 4**, a process in accordance with operation of software in accordance with an embodiment of the invention is depicted. The depicted process is the registration

10 process which is generally performed once per day. First, if the startup instance is the first instance of the browser for the day (**decision 100**), then the user is registered by returning user information to the server (**step 102**). The user information generally includes the user GUID, connection Type, Display Size,

15 operating system (OS) version, browser version, a reseller ID, versions of the components of client-side software **22B** and data stores **25A** and information about any third-party spyware that is installed on the user's system. Next, the current versions of the components on server **12** (business rule sets **23B**, URL/query lists

20 **24B** and client side software modules) are sent (**step 104**) to client side software **22B** and the client determines which components to update (**decision 106**). If the client software **22B** selects an update, the update request is returned to server (**step 108**), the server returns URLs of the update components (**step 110**)

and client software **22B** retrieves the updates and installs the

udpates (**step 110**). At the end of registration, the client is

initialized.

5   Referring now to **Figure 5,** client software **22B** running

operation is depicted in a flowchart. First, after the

initialization/update procedure described above, the client mode

objects are instantiated (**step 120**). While the description herein

refers to main browser window **37** and secondary browser window **35,**

10   it should be understood that the illustrative configuration is not

limiting to the actual implementation of embodiments of the

present invention. For example, it has been found convenient to

instantiate a business logic component that that performs the main

browser locator capture and sends it to a hidden window that is

15   that is provided for the information/advertising display. The

window is hidden normally and generates the secondary browser

display in response to indications from the business logic

component. The gist of the present invention is the functionality,

and not the specific limitations of the embodiments described

20   herein and variations thereon will be apparent to those skilled in

the art.

The client object responsible for capturing main browser

window captures locators as they are entered, triggered by browser

navigation controls, or by directives from other operating system or applications links (**step 122**). Each locator is compared to several lists or a single list with directives, or otherwise processed by business rules **23A** (e.g., a partial URL match in a

5   business rule could be used to block access to many URLs). First, the locator is compared to the block list (**decision 124**) and if a match is found, a warning page or alternate page can be displayed in main browser window (**step 126**), or alternatively in secondary browser window with no change to the main browser window or hiding

10 the main browser window. If the locator is not in the block list (**decision 124**), then the locator is searched in the target list (**step 128**) and if a match is found a notice (that may include URL target, screen size, reseller ID and connection speed) is sent to server (**step 130**) which supplies a response that may include

15 advertisers URL, advertiser ID and formatting information that dictates an advertisement/information that is be displayed in secondary browser window (**step 131**). Next, if the locator is a search engine (**decision 132**), then the query is stripped when received and notice (that may include search engine name, query,

20 screen size, page number, reseller ID and connection speed) is sent (**step 134**) to the server. The server responds with a search engine template and advertisement/information display URLs and formatting information and the secondary display is generated (**step 136**). Alternatively, target match or query match window

generation (steps **131** and **136**) may post directly to the main

browser window, or may wait for activation of a link within the

secondary browser window. The process above is repeated until the

browser is closed (**step 138**) upon which the client-side objects

5   are destroyed and the process ended.

The above server notices may also include ZIP code or other

geographical identifiers and the advertisements or other

information may be selected in conformity with the geographical

10   locale of the user and supplied for display in the secondary

browser window or main browser window. The zip code as mentioned

above, can be collected from scanning cookies or during a form

entry in the registration process or by other means.

15   Referring now to **Figure 6,** a server-side process in

accordance with an embodiment of the invention is depicted in a

flowchart. During the registration process mentioned above,

server-side software **22A** receives the user GUID and other

information and validates the user (**step 160**), supplying current

20   version information for current URL/query lists **24B** and business

rule sets **23B**. Updates are served (**step 162**) if requested

(**decision 161**) by the client and the client updates itself as

described above. Server-side software **22A** receives notices from

client-side software **22B** upon target matches (**decision 164**) and

provides URL and formatting information for advertisments and/or information that permit the client to display the advertisements and/or information in the secondary browser window (**step 165**). Server-side software **22A** also receives notices upon search engine

5 queries (**decision 166**) and provides a search engine template including URL and formatting information for advertisments and/or information that permits the client to display the advertisements and/or information in the secondary browser window in response to the received query information and search engine name (**step 167**).

10 The server side process continues unless shut down (**decision 168**).

While the invention has been particularly shown and described with reference to the preferred embodiments thereof, it will be understood by those skilled in the art that the foregoing and

15 other changes in form, and details may be made therein without departing from the spirit and scope of the invention.